

Claims

- [c1] (1) A fluid metering apparatus comprising an intensifier which receives fluid and which selectively emits the fluid at a certain pressure; and a regulator which is coupled to the intensifier and which receives and outputs the fluid which is emitted from the intensifier while regulating the pressure of the provided fluid.
- [c2] (2) The fluid metering apparatus of claim 1 wherein said intensifier has a first wide portion which initially receives said fluid and a second narrow portion which is in communication with said first wide portion and which includes a tapered end through which said fluid is emitted.
- [c3] (3) The fluid metering apparatus of claim 2 further comprising a plunger which is selectively movable within said first portion and which selectively pushes said fluid from said first portion to said second portion.
- [c4] 103 (4) The fluid metering apparatus of claim 3 further comprising a transducer which senses the position of said plunger and which generates a signal which is representative of said sensed position.
- [c5] (5) The fluid metering apparatus of claim 4 further comprising a first valve which selectively allows air to be communicated into said first portion, effective to cause said plunger to move within said first portion.
- [c6] (6) The fluid metering apparatus of claim 5 further comprising a second valve which selectively allows said fluid to enter said first portion.
- [c7] (7) The fluid metering apparatus of claim 6 wherein said fluid comprises water.
- [c8] (8) The fluid metering apparatus of claim 7 further comprising a controller which is controllably coupled to said first and second valves and to said transducer.
- [c9] (9) A method for dispensing fluid comprising the steps of receiving the fluid; moving the fluid through a small orifice; dispensing said fluid from said small orifice at a certain pressure; and regulating the pressure of the fluid which is output from the small orifice.

- [c10] (10) The method of claim 9 wherein said fluid comprises water.
- [c11] (11) The method of claim 10 wherein said step of receiving said fluid comprises the steps of providing a fluid reception member having a first wide hollow portion and a second narrow portion which is in communication with said first wide hollow portion; and communicatively coupling said first wide hollow portion to said fluid.
- [c12] (12) The method of claim 11 wherein said small orifice has a width which is no greater than about one eighth of said width of said first portion.
- [c13] (13) The method of claim 9 wherein said orifice is tapered.
- [c14] (14) The method of claim 13 wherein said step of dispensing said fluid from said small orifice at a certain pressure comprises the steps of providing a plunger; and reciprocally placing said plunger within said fluid reception member.
- [c15] (15) A method for controlling the dispensation of fluid at a certain desired output flow rate from an apparatus of the type which receives said fluid at a certain input flow rate and which receives pressurized gas at a certain input pressure, said method comprising the steps of:
receiving said desired output flow rate;
defining at least one of said input flow rate and said input pressure by use of said desired output flow rate;
utilizing said at least one defined value;
measuring said output flow rate;
comparing said measured output flow rate with said desired output flow rate;
and
altering said at least one defined value based upon said comparison.
- [c16] (16) The method of claim 15 wherein said fluid comprises water.
- [c17] (17) The method of claim 15 wherein said method further comprises the steps of defining a valve position by use of said output flow rate; and utilizing said defined valve position.

[c18] (18)The method of claim 15 wherein said step of defining at least one of said input flow rate and said input pressure by use of said desired output flow rate comprises the steps of:

providing a plurality of calibrated flow values; and

comparing said desired output flow rate with said calibrated flow values.

[c19] (19) The method of claim 18 further comprising the step of interpolating said plurality of calibrated flow rates to define said at least one of said input flow rate and said input pressure if said desired flow rate is not substantially equal to any of said plurality of calibrated flow values.